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Montana Basin Outlook Report March 1, 1999



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Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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How forecasts are made

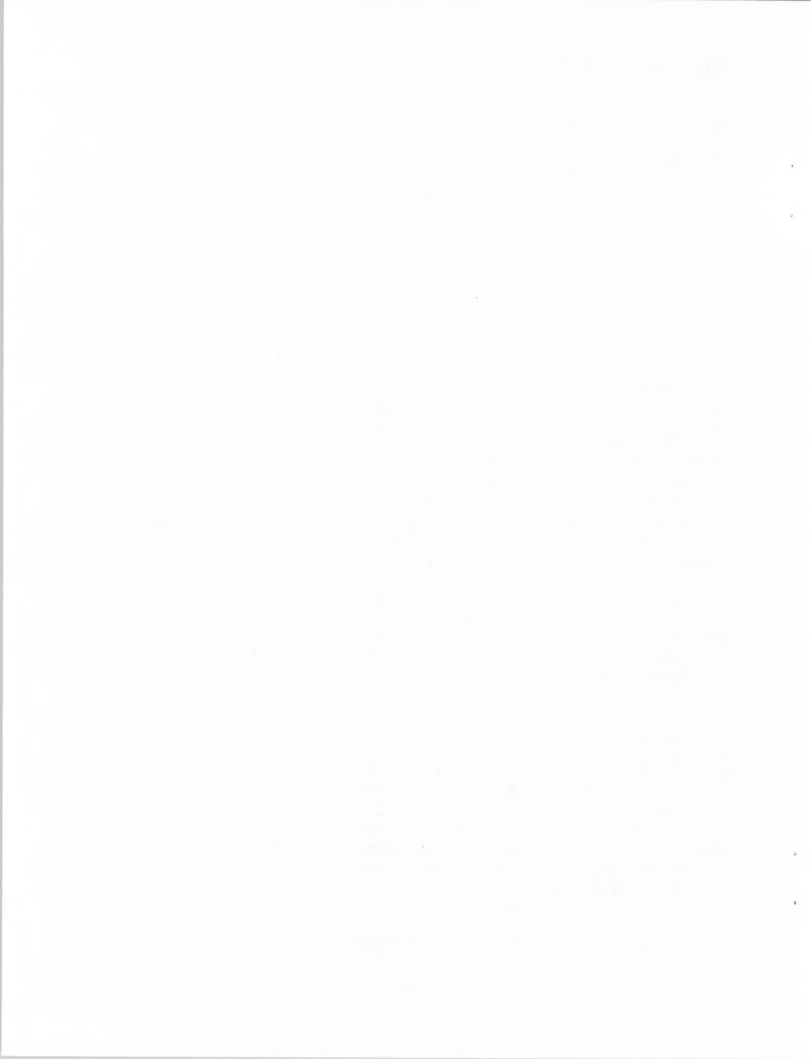
Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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Bozeman, Montana

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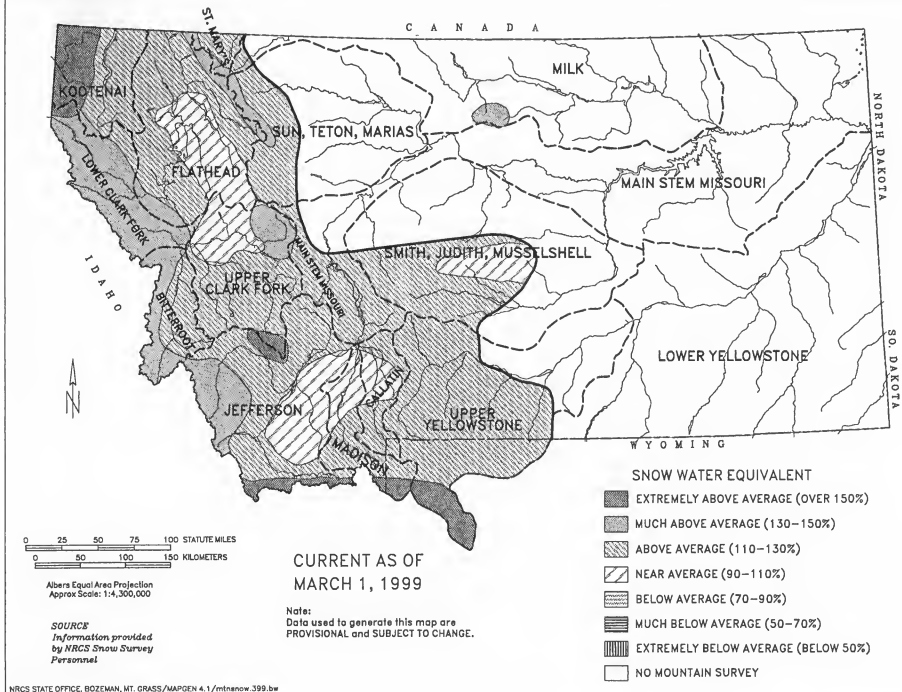
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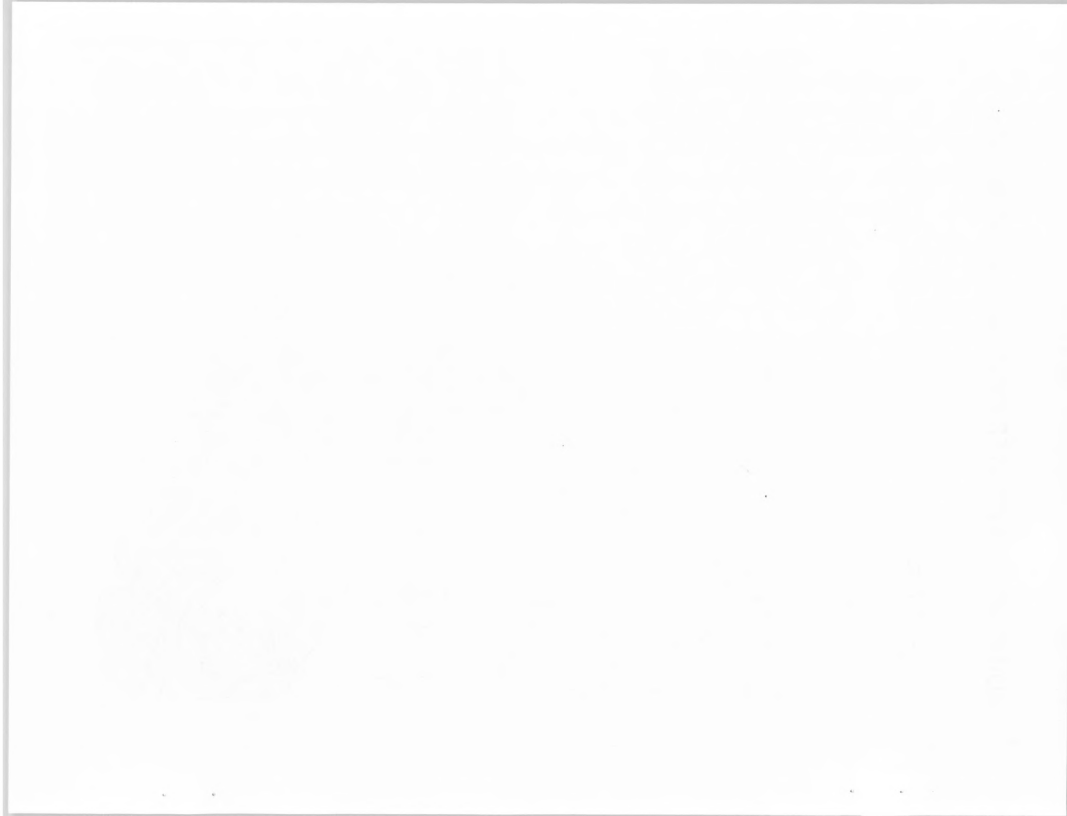
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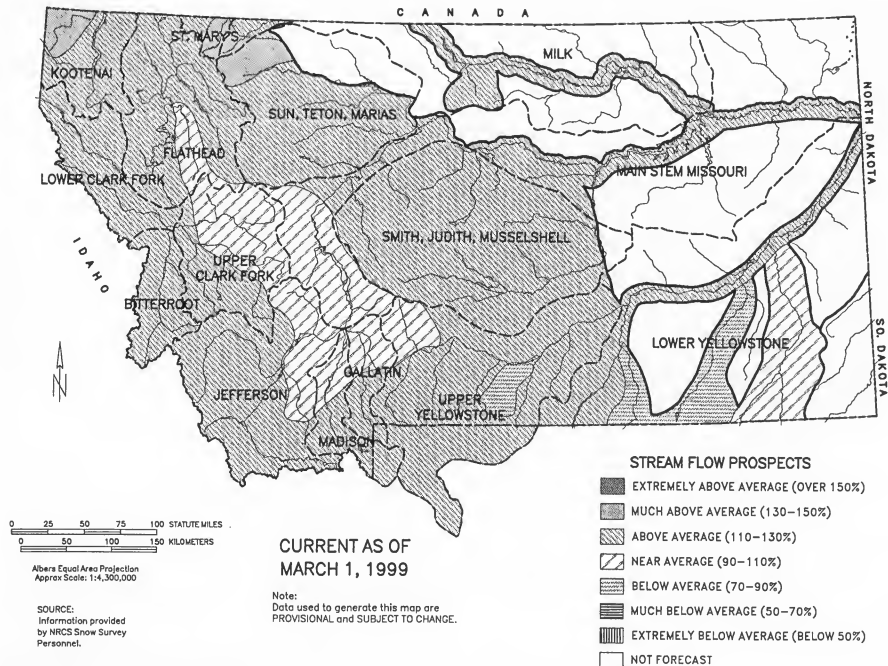
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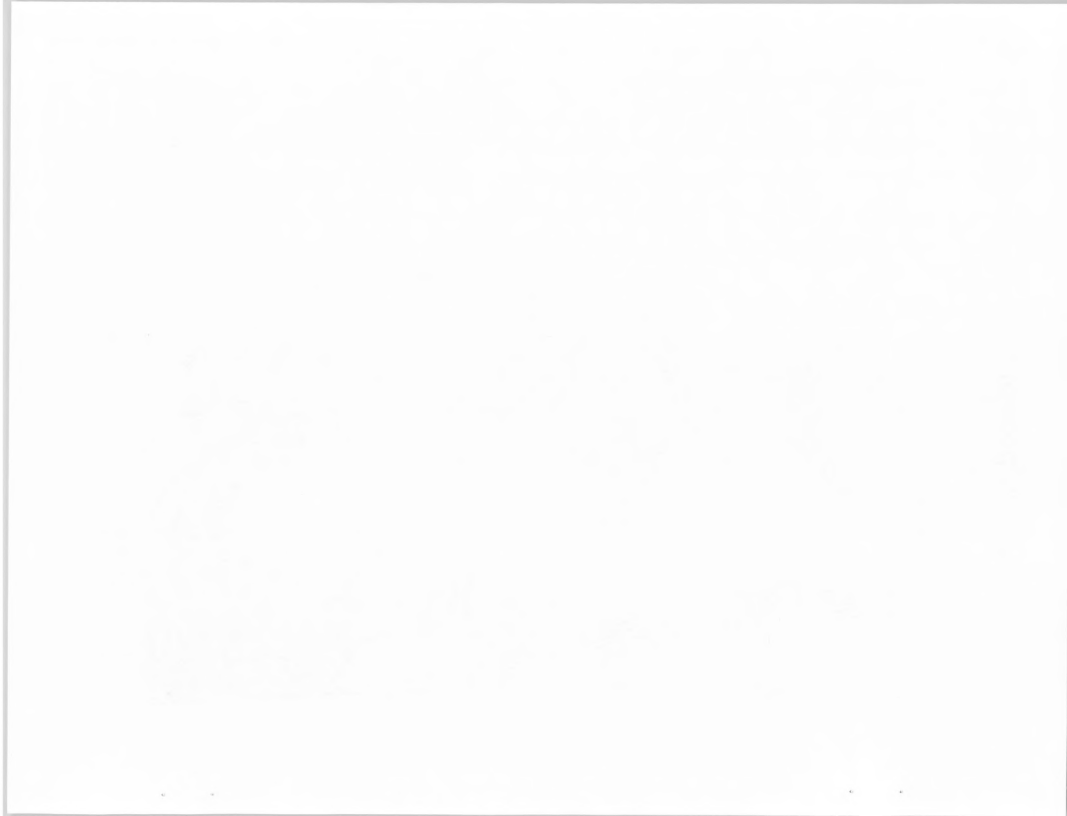


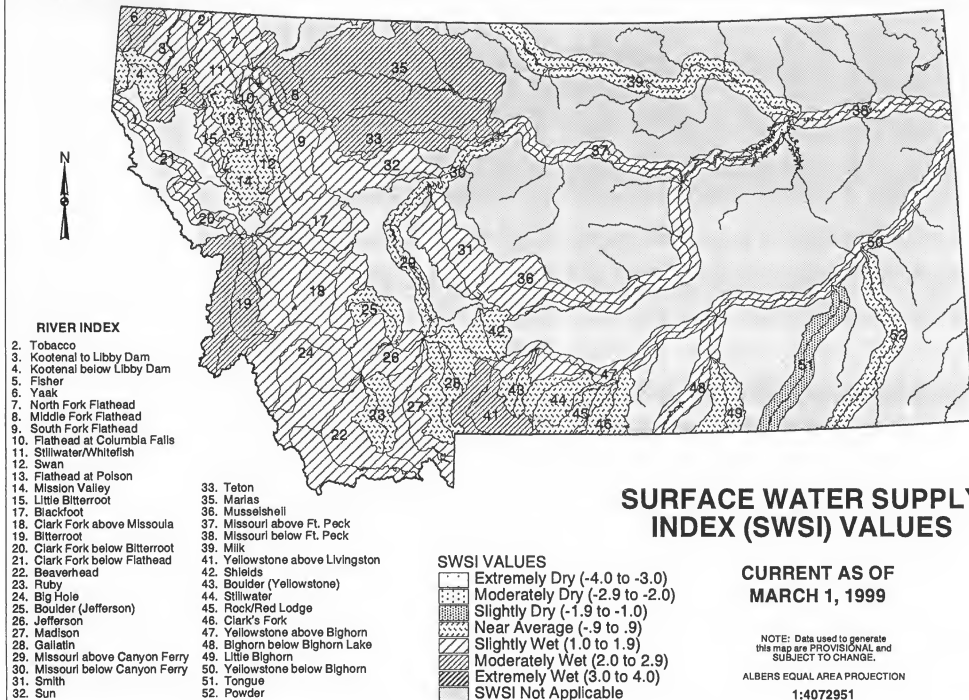


STREAM FLOW PROSPECTS FOR MONTANA

Spring and Summer Period









SUMMARY OF MONTANA SNOTEL AND SNOW COURSE DATA

MARCH 1999

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ABE LINCOLN	4440	2/24/99	79	26.8	14.1	--
ABUNDANCE LAKE	8800	2/26/99	60	20.1	15.1	16.8
ALBRO LAKE PILLOW	8300	3/01/99	---	18.3	11.6	16.4
AMBROSE	6480	2/22/99	50	14.6	8.4	11.0
ASHLEY LAKE	4000	2/22/99	22	4.8	3.1	6.1
ARCH FALLS	7350	2/23/99	41	9.8	7.0	9.8
ASHLEY DIVIDE	4820	2/22/99	25	6.6	4.4	6.4
BADGER PASS PILLOW	6900	3/01/99	---	39.3	18.4	30.8
BANFIELD MTN PILLOW	5600	3/01/99	---	26.1	11.9	17.4
BARRE MIDWAY	4600	2/25/99	129	43.7	20.8	30.5
BARRE TRAIL	3800	2/25/99	42	13.5	5.6	8.6
BARKER LAKES PILLOW	8250	3/01/99	---	13.0	9.0	12.2
BASIN CREEK PILLOW	7180	2/24/99	31	10.7	7.2	6.5
BASSOO PEAK	5150	2/25/99	38	10.7	5.1	10.0
BEAGLE SPGS PILLOW	8850	3/01/99	---	11.4	7.7	6.8
BEAR BASIN	8150	2/23/99	64	18.0	14.6	17.6
BEAVER CREEK PILLOW	7850	3/01/99	---	18.4	13.6	14.8
BERRY MEADOW	7000	2/25/99	26	6.8	3.6	6.5
BIG SNOWY	7150	2/26/99	54	14.6	8.4	17.3
BISSON CREEK PILLOW	4920	3/01/99	---	8.5	6.8	9.7
BLACK BEAR PILLOW	7950	3/01/99	---	46.5	31.4	31.7
BLACK MOUNTAIN	7750	2/25/99	40	11.2	12.2	12.2
BLACK PINE PILLOW	7100	3/01/99	---	13.4	6.6	10.5
BLACKTAIL	5650	2/22/99	49	15.6	7.8	12.6
BLOODY DICK PILLOW	7550	3/01/99	---	13.3	9.4	10.7
BLUE LAKE	5900	3/01/99	---	27.9E	12.0	22.0
BOTS SOTS	7750	2/26/99	19	4.4	7.7	6.3
BOULDER MTN PILLOW	7950	3/01/99	---	21.0	12.9	17.0
BOX CANYON PILLOW	6700	3/01/99	---	11.2	7.2	8.8
BOXELDER CREEK	5100	3/02/99	34	8.8	4.1	7.4
BRACKETT CR PILLOW	7320	3/01/99	---	21.0	14.2	16.7
BRANHAM LAKES	8850	2/27/99	75	24.3	17.5	24.5
BRUSH CREEK TIMBER	5000	2/25/99	31	7.6	4.2	8.6
BULL MOUNTAIN	6600	2/26/99	29	7.8	3.2	5.2
CABIN CREEK	5200	2/26/99	26	6.3	2.8	6.0
CALL ROAD	8050	2/27/99	37	8.7	9.5	9.4
CALVERT CR PILLOW	6430	3/01/99	---	10.6	6.2	8.0
CAMP SENIA	7890	2/26/99	15	3.2	5.9	4.6
CARROT BASIN PILLOW	9000	3/01/99	---	29.7	20.6	22.6
CARTER CREEK	7400	2/25/99	20	5.2	5.9	3.9
CHESSMAN RESERVOIR	6200	2/23/99	14	3.2	1.8	3.4
CHICKEN CREEK	4060	2/26/99	62	16.7	12.1	14.3
CLOVER MDW PILLOW	8800	3/01/99	---	16.6	13.9	14.9
COLE CREEK PILLOW	7850	3/01/99	---	7.4	10.4	12.9
COMBINATION PILLOW	5600	3/01/99	---	5.9	3.5	5.1
COPPER BOTTOM PILLOW	5200	3/01/99	---	13.8	5.2	10.0
COPPER CAMP PILLOW	6950	3/01/99	---	36.6	15.4	29.8
COPPER CREEK	5700	2/28/99	54	17.5	6.5	13.4
COPPER MOUNTAIN	7700	2/24/99	37	10.7	8.5	9.1
COTTONWOOD CREEK	6400	2/25/99	24	6.6	6.2	6.5
COXOTE HILL	4200	2/24/99	42	10.6	7.0	9.5
CREVICE MOUNTAIN	8400	2/27/99	40	11.4	9.9	9.0
CRISTAL LAKE PILLOW	6050	3/01/99	---	10.1	6.4	10.7
DAD CREEK LAKE	8400	2/27/99	45	12.1	12.0	11.0
DAISY PEAK	7600	2/24/99	39	10.3	5.1	9.0

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
DAISY PEAK PILLOW	7600	3/01/99	---	10.2	6.0	11.3
DAISY PEAK	7600	2/24/99	39	10.3	5.1	9.0
DAILY CREEK PILLOW	5780	3/01/99	---	12.6	8.5	10.0
DARKHORSE LK. PILLOW	8700	3/01/99	---	29.5	20.3	27.9
DAVIS CREEK	5400	2/25/99	108	38.2	18.5	21.1
DEADMAN CR PILLOW	6450	3/01/99	---	10.6	7.2	8.6
DESERT MOUNTAIN	5600	2/22/99	45	12.9	10.2	13.2
DISCOVERY BASIN	7050	2/24/99	34	9.6	7.7	8.6
DIVIDE PILLOW	7800	3/01/99	---	9.4	8.0	8.9
DIX HILL	6400	2/28/99	40	11.4	7.9	10.7
DUPUYER CREEK PILLOW	5750	3/01/99	---	11.6	2.5	10.6
EAST FORK R.S.	5400	2/28/99	26	7.2	4.6	6.0
EL DORADO MINE	7800	3/01/99	---	20.5E	15.4	16.7
ELK HORN SPRINGS	7800	2/26/99	38	10.6	7.0	7.8
ELK PEAK	8000	2/24/99	51	16.0	7.8	13.4
EMERY CREEK PILLOW	4350	3/01/99	---	15.3	8.8	14.0
FATTY CREEK	5500	3/01/99	---	21.9E	13.4	20.2
FISH CREEK	8000	2/24/99	34	13.8	8.2	7.8
FISHER CREEK PILLOW	9100	3/01/99	---	37.0	25.6	30.3
FIVE-BULL	5700	3/02/99	28	7.7	2.9	5.8
FLATTOP Mtn PILLOW	6300	3/01/99	---	54.0	30.7	40.9
FLEECER RIDGE	7500	2/26/99	40	14.2	6.0	9.0
FOOLHEN	8280	2/26/99	51	16.0	12.0	13.8
FOUR MILE	6900	2/24/99	30	8.7	5.6	7.1
FOURTH OF JULY	3450	2/24/99	45	13.7	8.3	8.6
FREIGHT CREEK	6000	3/01/99	---	17.5E	6.2	12.9
FROHNER MDWS PILLOW	6480	3/01/99	---	6.6	5.0	7.2
GARVER CREEK PILLOW	4250	3/01/99	---	12.2	8.5	9.2
GARVER CREEK	4250	2/25/99	45	13.6	8.0	9.9
GOAT MOUNTAIN	7000	2/27/99	41	11.4	3.6	9.2
GRASSHOPPER	7000	2/24/99	26	6.8	4.2	4.9
GRAVE CRK PILLOW	4300	3/01/99	---	16.2	12.1	15.2
GRIFFIN CR DIVIDE	5150	2/25/99	39	11.6	4.8	10.0
HAND CREEK PILLOW	5030	3/01/99	---	13.0	6.9	10.9
HAWKINS LAKE PILLOW	6450	3/01/99	---	34.7	15.0	24.2
HEBGEN DAM	6550	2/25/99	43	12.6	10.2	10.8
HELL ROARING DIVIDE	5770	2/26/99	90	30.7	16.0	26.4
HERRIG JUNCTION	4850	2/26/99	87	29.7	18.2	21.7
HOLBROOK	4530	3/02/99	35	10.7	5.4	8.8
HOODOO BASIN PILLOW	6050	3/01/99	---	56.0	27.3	39.7
INDEPENDENCE	7850	2/25/99	64	20.5	12.3	15.6
INTERGAARD	6450	2/25/99	23	6.6	6.2	6.8
JOHNSON PARK	6450	2/24/99	27	7.5	3.6	6.4
KISHENEHN	3890	2/25/99	32	9.5	6.2	7.5
KRAFT CREEK PILLOW	4750	3/01/99	---	14.4	9.4	14.5
LAKE CREEK	6100	2/26/99	35	8.0	7.5	7.4
LAKEVIEW CANYON	6930	3/01/99	47	13.3	8.6	9.4
LAKEVIEW RDG. PILLOW	7400	3/01/99	---	14.3	9.3	10.3
LEMHI RIDGE PILLOW	8100	3/01/99	---	9.5	8.9	8.9
LICK CREEK PILLOW	6860	3/01/99	---	8.9	8.5	10.7
LITTLE PARK	7400	2/23/99	53	13.8	11.1	13.4
LOGAN CREEK	4300	2/25/99	28	7.5	3.8	6.7
LONE MOUNTAIN PILLOW	8880	3/01/99	---	19.5	13.5	15.5
LOWER TWIN PILLOW	7900	3/01/99	---	15.4	11.1	15.0
LUBRECHT PILLOW	4680	3/01/99	---	6.1	4.5	5.8
LUBRECHT FOREST NO 3	5450	2/25/99	27	6.8	3.4	6.3
LUBRECHT FOREST NO 4	4650	2/26/99	13	3.3	1.4	3.1
LUBRECHT FOREST NO 6	4040	2/26/99	14	4.1	1.2	3.7
LUBRECHT HYDROPLT	4200	2/25/99	25	6.4	3.4	6.4
MADISON PLT PILLOW	7750	3/01/99	---	32.4	17.0	20.6

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
MANY GLACIER PILLOW	4900	3/01/99	---	18.9	10.4	14.8
MARIAS PASS	5250	2/25/99	59	20.5	10.2	14.9
MAYNARD CREEK	6210	2/22/99	48	13.3	9.0	12.4
MIDDLE MILL CREEK	7850	2/23/99	47	14.3	11.2	13.5
MILL CREEK	7500	2/26/99	45	13.1	10.4	10.2
MINERAL CREEK	4000	2/27/99	63	20.4	14.4	15.9
MONUMENT PK PILLOW	8850	3/01/99	---	23.9	15.5	17.8
MOSS PEAK PILLOW	6780	3/01/99	---	35.1	22.8	31.4
MT LOCKHART PILLOW	6400	3/01/99	---	24.8	13.0	18.0
MULE CREEK PILLOW	8300	3/01/99	---	16.1	11.1	13.2
NEVADA CREEK PILLOW	6480	3/01/99	---	17.4	8.8	11.2
NEVADA RIDGE PILLOW	7020	3/01/99	---	19.2	9.7	11.9
NEW WORLD	6900	2/24/99	38	10.4	10.6	12.0
NEWTON MOUNTAIN	5600	3/01/99	---	44.7E	25.4	29.0
NEZ PERCE CMP PILLOW	5650	3/01/99	---	15.3	10.4	13.0
NEZ PERCE CREEK	6600	2/24/99	28	7.3	4.6	5.9
NEZ PERCE PASS	6570	2/23/99	49	14.7	12.2	16.3
NOISY BASIN PILLOW	6040	3/01/99	---	39.9	26.6	33.7
N.F. ELK CR PILLOW	6250	3/01/99	---	13.0	6.9	10.8
NF JOCKO PILLOW	6330	3/01/99	---	45.8	28.4	39.8
N.E. ENTRANCE PILLOW	7350	3/01/99	---	11.3	6.2	8.1
NOTCH	8500	2/26/99	57	15.5	10.6	12.4
OPHIR PARK	7150	2/28/99	54	16.6	9.3	14.7
PETERSON MEADOWS	7200	2/24/99	32	9.2	7.1	8.4
PETERSON MDW PILLOW	7200	3/01/99	---	8.6	7.1	8.5
PICKFOOT CRK PILLOW	6650	3/01/99	---	11.1	6.3	9.1
PIKE CREEK PILLOW	5930	3/01/99	---	31.2	14.2	22.8
PIPESTONE PASS	7200	2/25/99	21	5.6	4.1	4.1
PLACER BASIN PILLOW	8830	3/01/99	---	15.5	12.3	15.3
PORCUPINE PILLOW	6500	3/01/99	---	6.6	5.5	6.1
POTOMAGETON PARK	7150	2/25/99	50	14.3	10.5	12.6
RED TOP	5260	3/01/99	---	36.7E	21.2	24.0
REVAIS CREEK	4800	2/25/99	11	2.6	1.6	3.1
ROCK CREEK	5600	2/26/99	35	8.6	5.2	8.7
ROCK CREEK MEADOW	8160	2/23/99	71	20.4	15.8	17.4
ROCKER PEAK PILLOW	8000	3/01/99	---	11.8	10.5	12.6
ROCKY BOY PILLOW	4700	3/01/99	---	6.3	3.4	4.6
ROCKY BOY	4700	3/02/99	19	5.2	2.0	4.0
SACAJAWEA	6550	2/22/99	48	14.2	10.6	11.8
SADDLE MTN PILLOW	7900	3/01/99	---	27.9	17.8	21.9
SHORT CREEK PILLOW	7000	3/01/99	---	5.4	5.1	4.9
SHOWER FALLS PILLOW	8100	3/01/99	---	19.0	16.5	18.8
SKALKAHO PILLOW	7260	3/01/99	---	27.0	17.1	20.8
SLIDE ROCK MOUNTAIN	7100	3/01/99	---	17.7E	9.5	13.3
SMUGGLER MINE	6960	2/23/99	30	9.2	6.9	8.6
S.F. SHIELDS PILLOW	8100	3/01/99	---	15.3	11.5	14.2
SPOTTED BEAR MTN.	7000	3/01/99	---	13.9E	7.5	13.3
SPUR PARK PILLOW	8100	3/01/99	---	22.9	13.7	18.6
SLEEPING WOMAN PILL	6150	3/01/99	---	19.3	9.4	13.0
STAHL PEAK PILLOW	6030	3/01/99	---	37.6	25.7	30.2
STEMPLE PASS	6600	2/25/99	43	12.0	5.0	8.5
STORM LAKE	7780	2/24/99	45	13.2	9.1	10.8
STRYKER BASIN	6180	2/26/99	99	32.1	22.0	28.5
STUART MOUNTAIN	7400	2/27/99	100	34.8	19.8	27.4
STUART MOUNTAIN PILL	7400	3/01/99	---	36.1	19.5	25.8
SUCKER CREEK	3960	3/02/99	3	.6	.0	.4
TAYLOR ROAD	4080	3/02/99	19	4.8	2.3	3.1
TEN MILE LOWER	6600	2/23/99	24	5.6	3.6	6.3
TEN MILE MIDDLE	6800	2/23/99	33	8.0	6.0	9.5
TEPEE CREEK PILLOW	8000	3/01/99	---	13.7	11.2	10.9

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90

TIMBERLINE CREEK	8850	2/26/99	40	8.7	13.7	11.5
TIZER BASIN PILLOW	6840	3/01/99	---	7.1	8.3	9.6
TRAIL CREEK	7090	2/27/99	31	8.0	6.8	6.9
TRINKUS LAKE	6100	2/22/99	112	39.9	25.8	36.7
TRUMAN CREEK	4060	2/22/99	18	4.6	2.8	5.0
TV MOUNTAIN	6800	2/27/99	60	19.2	8.2	15.6
TWELVEMILE PILLOW	5600	3/01/99	---	22.0	13.3	16.4
TWENTY-ONE MILE	7150	2/28/99	69	21.2	11.7	14.9
TWIN CREEKS	3580	3/01/99	---	10.9E	5.5	10.7
TWIN LAKES PILLOW	6400	3/01/99	---	50.9	28.2	34.3
UPPER HOLLAND LAKE	6200	2/22/99	92	31.6	23.6	30.4
WALDRON PILLOW	5600	3/01/99	---	13.5	6.0	10.0
WARM SPRINGS PILLOW	7800	3/01/99	---	20.0	16.2	18.2
WEASEL DIVIDE	5450	2/24/99	106	35.6	22.2	29.5
WEST YELLOWSTONE	6700	2/28/99	48	13.7	8.7	10.3
WEST YELL'ST PILLOW	6700	3/01/99	---	14.1	6.0	10.1
WHISKEY CREEK PILLOW	6800	3/01/99	---	19.1	11.7	14.5
WHITE MILL PILLOW	8700	3/01/99	---	25.4	19.1	21.2
WHITE PINE RIDGE	8850	2/27/99	24	5.3	4.8	4.4
WILLOW CREEK	6500	2/25/99	15	3.9	5.4	7.1
WOOD CREEK PILLOW	5960	3/01/99	---	10.8	4.8	9.7
WRONG CREEK	5700	2/24/99	47	12.5	6.0	12.0
WRONG RIDGE	6800	2/25/99	58	20.0	8.9	16.6

Montana Water Supply Outlook Report as of March 1, 1999

During February weather patterns have been mainly westerly flows producing storm activity along the Continental Divide in the northwest, southwest, and southcentral regions. Average temperatures east of the Continental Divide have been about 8 to 12 degrees above average and west of the Continental Divide have been about 2 to 7 degrees above average. Mountain precipitation for February was generally above to well above average.

Snowpack

As of March 1, mountain snow water contents were ranging from below average in the Stillwater/Rock Creek, Tongue, Little Bighorn, and Powder Rivers to well above average in the Kootenai, Bitterroot, Lower Clark Fork, St. Mary, Marias, Teton, Yellowstone Lake, and Upper Madison basins. Statewide, mountain snow water content is 123 percent of average and 161 percent above last year. Snowpack continues to be near to well above average at high mountain elevations and near to below average at mid and low mountain elevations. There are some new record snow water contents at the high elevations in the Kootenai River. West of the Continental Divide, snowpack was 127 percent of average and 173 percent of last year and east of the Continental Divide, snowpack was 117 percent of average and 140 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	127	173
KOOTENAI	144	186
FLATHEAD	118	167
UPPER CLARK FORK	121	166
BITTERROOT	132	168
LOWER CLARK FORK	141	205
MISSOURI	120	156
MISSOURI HEADWATERS	121	141
JEFFERSON	120	142
MADISON	127	146
GALLATIN	114	134
MISSOURI MAINSTEM	118	189
HEADWATERS MAINSTEM	115	156
SMITH-JUDITH-MUSSELSHELL	111	167
SUN-TETON-MARIAS	127	229
MAINSTEM ABOVE FT. PECK RES	119	191
MILK	135	307
BEARPAW MOUNTAINS	132	209
CYPRESS HILLS, CANADA	136	490
ST. MARY	130	168
ST. MARY & MILK	132	198
YELLOWSTONE	112	121
UPPER YELLOWSTONE	120	137
LOWER YELLOWSTONE (WYOMING)	108	112
WIND	115	117
SHOSHONE	132	148
BIGHORN	118	128
TONGUE	85	85
POWDER	89	93

The Kootenai River Basin is the fourth highest of record behind 1972, 1974, and 1967 respectively. The combined Sun-Teton-Marias River Basins are fifth highest of record behind 1972, 1971, 1974, and 1997 respectively.

Precipitation

February mountain and valley precipitation across the state was 144 percent of average and 304 percent of last year, while the water year precipitation was 122 percent of average and 151 percent of last year.

West of the Continental Divide, February mountain and valley precipitation was 150 percent of average and 363 percent of last year and the water year precipitation was 124 percent of average and 160 percent of last year. East of the Divide, February mountain and valley precipitation was 138 percent of average and 245 percent of last year and the water year precipitation was 119 percent of average and 138 percent of last year.

RIVER BASIN	FEBRUARY % OF AVERAGE	WATER YEAR % OF AVERAGE
COLUMBIA	150	363
KOOTENAI	134	115
FLATHEAD	136	119
UPPER CLARK FORK	136	121
BITTERROOT	154	130
LOWER CLARK FORK	171	133
MISSOURI	139	118
JEFFERSON	143	117
MADISON	179	125
GALLATIN	142	109
MISSOURI MAINSTEM	106	107
SMITH-JUDITH-MUSSELSHELL	107	114
SUN-TETON-MARIAS	114	117
MILK	180	152
ST. MARY	127	123
YELLOWSTONE	137	122
UPPER YELLOWSTONE	139	119
LOWER YELLOWSTONE (WYOMING)	137	129
WIND	157	122
SHOSHONE	148	144
BIGHORN	131	128
TONGUE	97	95
POWDER	94	114

Reservoirs

Major reservoir storages statewide were 98 percent of average and 84 percent of last year.

Reservoir storage west of the Continental Divide was 94 percent of average and 78 percent of last year. East of the Continental Divide, reservoir storages were 98 percent of average and 90 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	94	78
KOOTENAI	91	56
FLATHEAD	95	99
UPPER CLARK FORK	140	102
BITTERROOT	61	79
LOWER CLARK FORK	109	99
MISSOURI	107	94
JEFFERSON	109	94
MADISON	113	106
GALLATIN	163	78
MISSOURI MAINSTEM	104	96
SMITH-JUDITH-MUSSELSHELL	116	95
SUN-TETON-MARIAS	110	88
MILK	92	83
ST. MARY	54	49
YELLOWSTONE	96	92
UPPER YELLOWSTONE	96	91
LOWER YELLOWSTONE	96	92

Streamflow

Averaged river basin streamflows across Montana are forecast to range between 106 and 129 percent of average. Last year streamflow forecasts ranged from 64 to 89 percent of average.

West of the Continental Divide, river basin streamflows are forecast to range between 108 and 129 percent of average. Last year river basin streamflow forecasts ranged from 65 to 82 percent of average. East of the Continental Divide, river basin streamflows are forecast to range between 100 and 130 percent of average. Last year river basin streamflow forecasts ranged from 69 to 96 percent of average.

Below are averaged river basin streamflow forecast summaries for the period April 1 through July 31. THESE FORECASTS ASSUME NEAR NORMAL SPRING CONDITIONS AND DO NOT ACCOUNT FOR WELL BELOW AVERAGE (70% or less) OR WELL ABOVE AVERAGE (130% or more) SNOWMELT OR SPRING RAIN. Specific forecast probabilities are available in each individual River Basin Report.

RIVER BASIN	April-July	% OF AVERAGE	April-July	% OF AVERAGE
	THIS YEAR		LAST YEAR	
COLUMBIA	108 to 129		65 to 82	
KOOTENAI	113 to 131		66 to 78	
FLATHEAD	106 to 121		67 to 79	
UPPER CLARK FORK	99 to 130		59 to 86	
BITTERROOT	114 to 133		72 to 89	
LOWER CLARK FORK	110 to 128		62 to 79	
MISSOURI	102 to 134		69 to 96	
JEFFERSON	94 to 131		72 to 101	
MADISON	109 to 124		80 to 94	
GALLATIN	89 to 110		80 to 99	
MISSOURI MAINSTEM	103 to 133		64 to 99	
SMITH-JUDITH-MUSSELSHELL	103 to 138		59 to 92	
SUN-TETON-MARIAS	111 to 146		57 to 90	
MILK	104 to 153		41 to 85	
ST. MARY	120 to 132		72 to 84	
YELLOWSTONE	96 to 120		74 to 98	
UPPER YELLOWSTONE	104 to 124		77 to 97	
LOWER YELLOWSTONE	87 to 116		72 to 100	

NOTE: The APRIL-JULY LAST YEAR % OF AVERAGE column above is what was forecast last year, not what actually occurred.

Surface Water Supply Index

The Surface Water Supply Index (SWSI) is a measure of available surface water availability for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

SWSI RATING	SURFACE WATER CONDITION
+3.0 to +4.0	Extremely Wet
+2.0 to +3.0	Moderately Wet
+1.0 to +2.0	Slightly Wet
-1.0 to +1.0	Near Average
-1.0 to -2.0	Slightly Dry
-2.0 to -3.0	Moderately Dry
-3.0 to -4.0	Extremely Dry

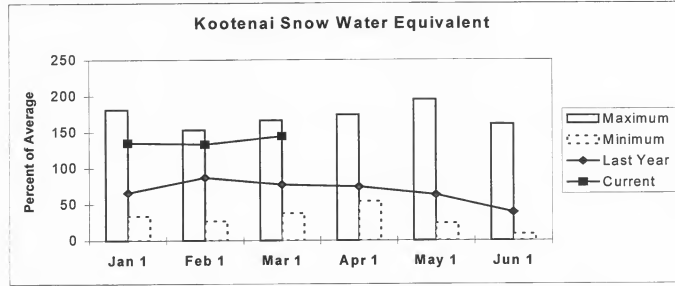
SWSI

Basin

+1.7	Kootenai River at Ft. Steele (Kootenai in Canada)
+1.3	Tobacco River
+0.5	Kootenai Ft. Steele to Libby Dam
+0.3	Kootenai River below Libby Dam
+2.4	Fisher River
+2.7	Yaak River
+1.4	North Fork Flathead River
+2.5	Middle FORK Flathead River
+1.1	South Fork Flathead River
+1.6	Flathead River at Columbia Falls
+1.4	Stillwater/Whitefish Rivers
+0.4	Swan River
+0.9	Flathead River at Polson
+0.7	Mission Valley
+1.4	Little Bitterroot River
+1.1	Clark Fork River above Rock Creek
+1.3	Blackfoot River
+1.2	Clark Fork River above Missoula
+2.1	Bitterroot River
+1.4	Clark Fork River below Bitterroot River
+1.1	Clark Fork River below Flathead River
+1.2	Beaverhead River
+0.1	Ruby River
+1.1	Big Hole River
+0.6	Boulder River (Jefferson)
+1.0	Jefferson River
+1.2	Madison River
-0.3	Gallatin River
+0.8	Missouri River above Canyon Ferry
+0.7	Missouri River below Canyon Ferry
+1.5	Smith River
+1.6	Sun River
+2.4	Teton River
+2.3	Birch/Dupuyer Creeks
+2.4	Marias River
+1.2	Musselshell River
+1.5	Missouri River above Ft. Peck
+1.0	Missouri River below Ft. Peck
+0.7	Milk River
+2.5	Yellowstone River above Livingston
+0.3	Shields River
+0.6	Boulder River (Yellowstone)
+0.9	Stillwater River
-0.2	Rock/Red Lodge Creeks
+0.8	Clarks Fork River
+1.8	Yellowstone River above Bighorn River
+1.9	Bighorn River below Bighorn Lake
-0.7	Little Bighorn River
+1.8	Yellowstone River below Bighorn River
-1.1	Tongue River
-0.1	Powder River

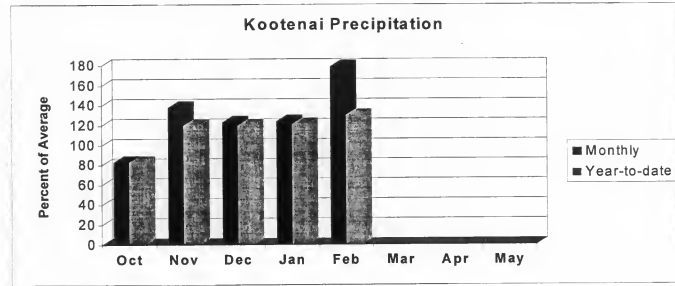
Kootenai River Basin in Montana

Snowpack conditions in the Kootenai River Basin were well above average. Snow water content was 144 percent of average and 186 percent of last year. This is the fourth highest of record behind 1972, 1974, and 1967 respectively. New March 1 snow water records are as follows: Poorman Creek SNOTEL at 52.2 inches passing the old record of 46 inches set in 1972; Davis Creek snow course at 38.2 inches passing the old record of 33.4 inches set in 1974; and Fourth of July snow course at 13.7 inches passing the old record of 12.5 inches in 1985.



January maximum swe was established in 1997 and minimum was in 1977; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1974 and minimum swe was in 1977; May maximum swe was in 1974 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during February was 186 percent of average and 392 percent of last year. Valley precipitation during February was 134 percent of average and 539 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 130 percent of average and 172 percent of last year.



Lake Koocanusa storage was 91 percent of average and 56 percent of last year.

Surface Water Supply Index (SWSI) was +1.7 in the Kootenai at Ft. Steele (Kootenai in Canada); +1.3 in the Tobacco River; +1.9 in the Kootenai Ft. Steele to Libby Dam; +0.5 in the Kootenai River below Libby Dam; +2.4 in the Fisher River; and +2.7 in the Yaak River.

KOOTENAI RIVER BASIN in Montana
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
		90%	70%	Chance of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
TOBACCO RIVER nr Eureka	APR-JUL	125	146	160	120	174	195	133
	APR-SEP	135	159	175	119	191	215	147
LIBBY Reservoir Inflow (1,2)	APR-JUL	5237	6057	6430	111	6803	7623	5779
	APR-SEP	6130	7093	7530	111	7967	8930	6772
FISHER RIVER nr Libby	APR-JUL	213	259	290	124	321	367	234
	APR-SEP	229	277	310	124	343	391	250
YAAK RIVER nr Troy	APR-JUL	586	642	680	141	718	774	483
	APR-SEP	614	671	710	141	749	806	505
KOOTENAI at Leona (1,2)	APR-JUL	6552	7582	8050	112	8518	9548	7199
	APR-SEP	7526	8712	9250	112	9788	10974	8275

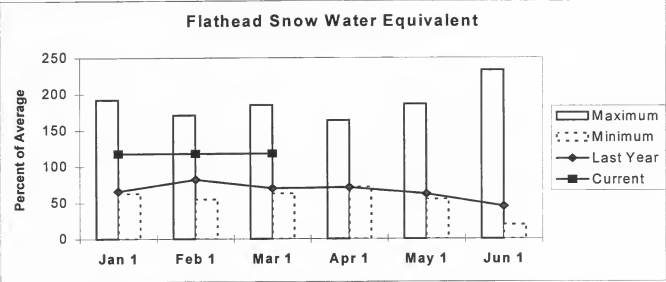
KOOTENAI RIVER BASIN in Montana Reservoir Storage (1000 AF) - End of February					KOOTENAI RIVER BASIN in Montana Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
LAKE KOOCANUSA	5748.0	1751.0	3137.0	1921.0	KOOTENAI in CANADA	23	188	133
					KOOTENAI MAINTSTEM	2	216	164
					TOBACCO	3	149	119
					FISHER	4	207	133
					YAAK	7	185	154
					KOOTENAI in MONTANA	16	186	144
					KOOTENAI ab BONNERS FERRY	39	187	139

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - The operational measurement of flow at this point has been discontinued.

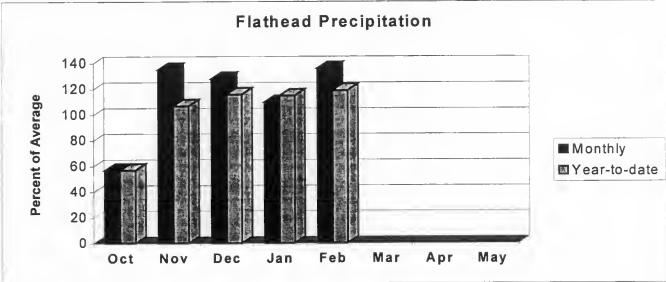
Flathead River Basin

Snowpack conditions in the Flathead River Basin were above average. Snow water content was 118 percent of average and 167 percent of last year. Sleeping Woman SNOTEL has set a new March 1 snow water record at 19.3 inches passing the old record of 14.8 inches set in 1996.



January maximum swe was established in 1997 and minimum was in 1988; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1992; May maximum swe was in 1972 and minimum was in 1992; and June maximum swe was in 1974 and minimum was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during February was 138 percent of average and 333 percent of last year. Valley precipitation during February was 112 percent of average and 805 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 119 percent of average and 156 percent of last year.



Combined Camas reservoir storage was 166 percent of average and 104 percent of last year; combined Mission Valley reservoir storage was 71 percent of average and 74 percent of last year; Hungry Horse storage was 103 percent of average and 97 percent of last year; and Flathead Lake storage was 72 percent of average and 109 percent of last year.

Surface Water Supply Index (SWSI) was +1.4 in the North Fork Flathead River; +1.5 in the Middle Fork Flathead River; +1.1 in the South Fork Flathead River; +1.6 in the Flathead River at Columbia Falls; +1.4 in the Stillwater/Whitefish Rivers; +0.4 in the Swan River; +0.9 in the Flathead River at Polson; +0.7 in the Mission Valley; and +1.4 in the Little Bitterroot River.

FLATHEAD RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<< Drier		Future Conditions		>>> Wetter		30-Yr Avg. (1000AF)
		90%	70%	Chance of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
NF FLATHEAD nr Columbia Falls	APR-JUL	1642	1784	1880	113	1976	2118	1662
	APR-SEP	1818	1974	2080	113	2186	2342	1836
MF FLATHEAD nr West Glacier	APR-JUL	1673	1808	1900	116	1992	2127	1638
	APR-SEP	1821	1969	2070	116	2171	2319	1788
HUNGRY HORSE Reservoir Inflow (1,2)	APR-JUL	1904	2204	2340	114	2476	2776	2051
	APR-SEP	2029	2339	2480	114	2621	2931	2184
FLATHEAD at Columbia Falls (1,2)	APR-JUL	5085	5893	6260	114	6627	7435	5482
	APR-SEP	5523	6401	6800	114	7199	8077	5960
STILLWATER nr Whitefish	APR-JUL	163	200	225	119	250	287	189
	APR-SEP	183	223	250	120	277	317	209
WHITEFISH nr Kalispell	APR-JUL	91	105	115	111	125	139	104
	APR-SEP	102	119	130	112	141	158	116
SWAN RIVER nr Bigfork	APR-JUL	500	563	605	104	647	710	583
	APR-SEP	568	640	690	104	740	812	665
FLATHEAD Lake Inflow (1,2)	APR-JUL	6352	7121	7470	117	7819	8588	6390
	APR-SEP	6887	7721	8100	117	8479	9313	6926

FLATHEAD RIVER BASIN Reservoir Storage (1000 AF) - End of February					FLATHEAD RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CANAS (4)	45.2	34.9	33.7	21.0	NF FLATHEAD in CANADA	1	167	133
MISSION VALLEY (8)	100.0	26.9	36.3	37.8	NF FLATHEAD in MONTANA	9	162	125
HUNGRY HORSE	3451.0	2281.0	2358.0	2205.0	MIDDLE FORK FLATHEAD	6	187	127
FLATHEAD LAKE	1791.0	638.6	587.7	881.0	SOUTH FORK FLATHEAD	7	157	110
					STILLWATER-WHITEFISH	10	168	115
					SWAN	7	152	111
					MISSION VALLEY	4	160	110
					LITTLE BITTERROOT-ASHLEY	6	192	108
					JOCKO	5	183	126
					FLATHEAD in MONTANA	40	168	118
				FLATHEAD RIVER BASIN	41	168	118	

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

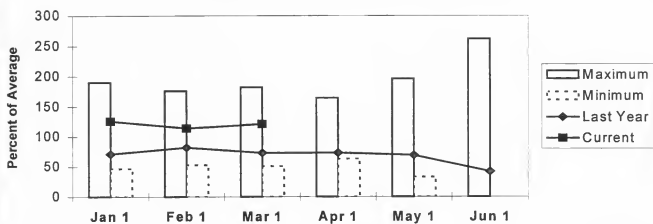
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural volume - actual volume may be affected by upstream water management.
 (D) - The operational measurement of flow at this point has been discontinued.

Upper Clark Fork River Basin

Snowpack conditions in the Upper Clark Fork River Basin were above average. Snow water content was 121 percent of average and 166 percent of last year. Moulton Reservoir snow course has set a new snow water record of 9.8 inches passing the old record of 8 inches in 1996.

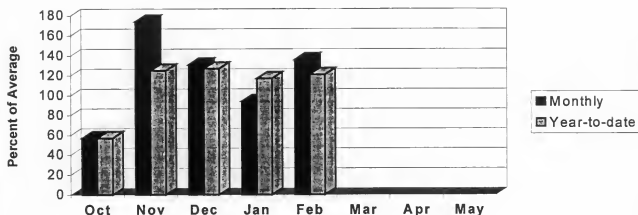
Upper Clark Fork Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1994; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1975 and minimum swe was in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during February was 136 percent of average and 334 percent of last year. Valley precipitation during February was 141 percent of average and 475 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 121 percent of average and 155 percent of last year.

Upper Clark Fork Precipitation



Lower Willow Creek storage was 141 percent of average and 104 percent of last year; and Nevada Creek storage was 140 percent of average and 101 percent of last year.

Surface Water Supply Index (SWSI) was +1.1 in the Clark Fork River above Rock Creek; +1.3 in the Blackfoot River; and +1.2 in the Clark Fork River above Missoula.

UPPER CLARK FORK RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----->>>		Future Conditions		----- Wetter ----->>>		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable)	(% AVG.)	(1000AF)	(1000AF)	
WARM SPRINGS CK at Anaconda (D)	APR-JUL	26	34	40	105	46	54	38
	APR-SEP	33	43	49	104	55	65	47
LITTLE BLACKFOOT nr Garrison	APR-JUL	44	69	86	104	103	129	83
	APR-SEP	49	75	93	105	111	138	89
FLINT CREEK nr Southern Cross	APR-JUL	7.7	11.7	14.5	102	17.3	21	14.2
	APR-SEP	8.5	13.6	17.0	102	20	26	16.7
FLINT CREEK blw Boulder Ck	APR-JUL	40	56	66	116	77	92	57
	APR-SEP	52	71	83	114	96	114	73
LOWER WILLOW CK Reservoir Inflow	APR-JUL	9.7	13.7	16.5	118	19.3	23	14.0
	APR-SEP	10.5	14.7	17.5	118	20	25	14.8
MF ROCK CREEK nr Philipsburg	APR-JUL	61	72	80	121	88	99	66
	APR-SEP	69	82	90	122	98	111	74
ROCK CREEK nr Clinton	APR-JUL	284	338	375	127	412	466	296
	APR-SEP	320	380	420	126	460	520	333
NEVADA CREEK nr Finn	APR-JUL	12.5	18.1	22	115	26	32	19.1
	APR-SEP	14.0	19.9	24	114	28	34	21
CLEARWATER nr Clearwater	APR-JUL	132	163	185	108	207	238	172
	APR-SEP	140	173	195	108	217	250	181
BLACKFOOT RIVER nr Bonner	APR-JUL	765	905	1000	120	1095	1235	835
	APR-SEP	858	1008	1110	120	1212	1362	926
CLARK FORK abv Milltown	APR-JUL	520	681	790	121	899	1060	652
	APR-SEP	609	788	910	121	1032	1211	755
CLARK FORK abv Missoula	APR-JUL	1417	1639	1790	120	1941	2163	1487
	APR-SEP	1615	1856	2020	120	2184	2425	1681

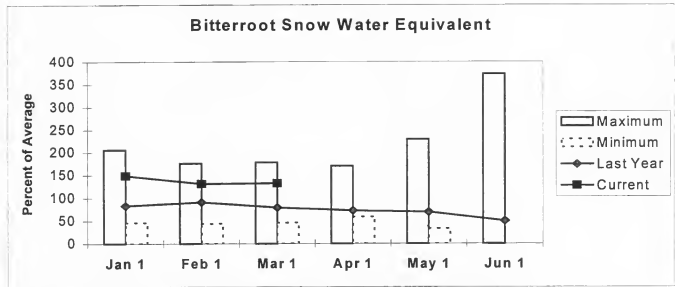
UPPER CLARK FORK RIVER BASIN Reservoir Storage (1000 AF) - End of February					UPPER CLARK FORK RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
	This Year	Last Year	Avg				Last Yr	Average
GEORGETOWN LAKE	NO REPORT				CLARK FORK ab FLINT CREEK	15	146	118
LOWER WILLOW CREEK	4.9	2.4	2.3	1.7	FLINT CREEK	6	143	114
NEVADA CREEK	12.6	7.0	6.9	5.0	ROCK CREEK	5	158	126
					CLARK FORK ab BLACKFOOT	23	152	121
					BLACKFOOT	17	193	125
					UPPER CLARK FORK BASIN	37	166	121

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(D) - The operational measurement of flow at this point has been discontinued.

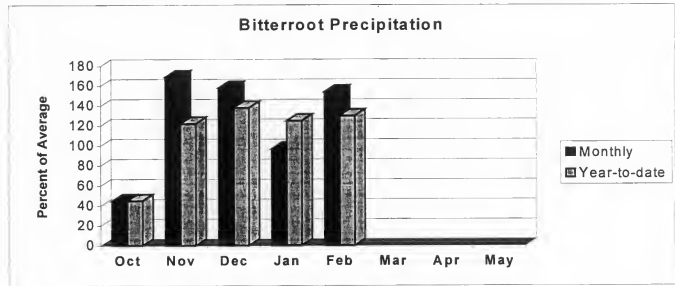
Bitterroot River Basin

Snowpack conditions in the Bitterroot River Basin were well above average. Snow water content was 132 percent of average and 168 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1977; May maximum swe was in 1972 and minimum swe was in 1987; and June maximum swe was 1972 and 1974 and minimum swe was in 1987 and 1992. Average is for the period 1961 through 1990.

Mountain precipitation during February was 157 percent of average and 354 percent of last year. Valley precipitation during February was 117 percent of average and 345 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 130 percent of average and 149 percent of last year.



Painted Rocks Lake storage was 54 percent of average and 287 percent of last year and Como storage was 67 percent of average and 51 percent of last year.

Surface Water Supply Index (SWSI) was +2.1 in the Bitterroot River.

BITTERROOT RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<< Drier		Future Conditions		Wetter >>>		30-Yr Avg. (1000AF)
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF) (% AVG.)		(1000AF)	(1000AF)	
WF BITTERROOT nr Conner (2)	APR-JUL	140	167	185	122	203	230	152
	APR-SEP	149	179	200	121	221	251	166
BITTERROOT nr Darby	APR-JUL	468	544	595	121	646	722	491
	APR-SEP	523	602	655	121	708	787	540
COMO Reservoir Inflow	APR-JUL	88	96	102	129	108	116	79
	APR-SEP	93	101	107	129	113	121	83
SKALMAHO CK nr Hamilton	APR-JUL	43	51	57	124	63	71	46
	APR-SEP	50	59	65	123	71	80	53
BITTERROOT at Missoula	APR-JUL	1341	1471	1560	120	1649	1779	1300
	APR-SEP	1464	1605	1700	120	1795	1936	1420

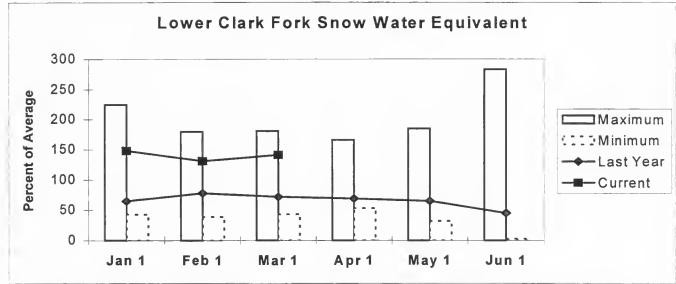
BITTERROOT RIVER BASIN Reservoir Storage (1000 AF) - End of February					BITTERROOT RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
PAINTED ROCKS LAKE	31.7	6.6	2.3	12.3	WEST FORK BITTERROOT	3	143	113
COMO	34.9	8.8	17.3	13.1	EAST SIDE BITTERROOT	5	158	128
					WEST SIDE BITTERROOT	3	190	147
					BITTERROOT RIVER BASIN	10	168	132

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - The operational measurement of flow at this point has been discontinued.

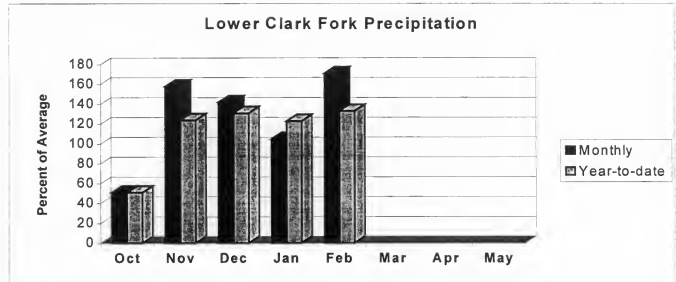
Lower Clark Fork River Basin

Snowpack conditions in the Lower Clark Fork River Basin were well above average. Snow water content was 141 percent of average and 205 percent of last year. This is the eighth highest year of record.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum swe was in 1981; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1977. Average is for the period 1961 through 1990.

Mountain precipitation during February was 177 percent of average and 368 percent of last year. Valley precipitation during February was 148 percent of average and 419 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 133 percent of average and 173 percent of last year.



Noxon Rapids storage was 109 percent of average and 99 percent of last year.

Surface Water Supply Index (SWSI) was +1.4 in the Clark Fork River below Bitterroot River and +1.1 in the Clark Fork River below Flathead River.

LOWER CLARK FORK RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----->>		Future Conditions		----- Wetter ----->>>		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable)	(% AVG.)	(1000AF)	(1000AF)	
CLARK FORK abv Missoula	APR-JUL	1417	1639	1790	120	1941	2163	1487
	APR-SEP	1615	1856	2020	120	2184	2425	1681
CLARK FORK blw Missoula	APR-JUL	2787	3122	3350	120	3578	3913	2788
	APR-SEP	3112	3474	3720	120	3966	4328	3099
CLARK FORK at St. Regis (1)	APR-JUL	3219	4086	4480	122	4874	5741	3686
	APR-SEP	3560	4523	4960	121	5397	6360	4095
CLARK FORK nr Plains (1,2)	APR-JUL	9707	11421	12200	117	12979	14693	10450
	APR-SEP	10659	12544	13400	117	14256	16141	11470
THOMPSON nr Thompson Falls	APR-JUL	195	228	250	117	272	305	214
	APR-SEP	222	257	280	117	303	338	240
PROSPECT CREEK at Thompson Falls	APR-JUL	122	139	150	122	161	178	123
	APR-SEP	126	143	155	117	167	184	132
CLARK FK at Whitehorse Rpd (1,2)	APR-JUL	10635	12605	13500	115	14395	16365	11730
	APR-SEP	11747	13915	14900	115	15085	18053	12910

LOWER CLARK FORK RIVER BASIN					LOWER CLARK FORK RIVER BASIN				
Reservoir Storage (1000 AF) - End of February					Watershed Snowpack Analysis - March 1, 1999				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of		
	This Year	Last Year	Avg	Last Yr			Average		
NOXON RAPIDS	335.0	323.9	326.7	298.1	LOWER CLARK FORK BASIN	11	198	142	

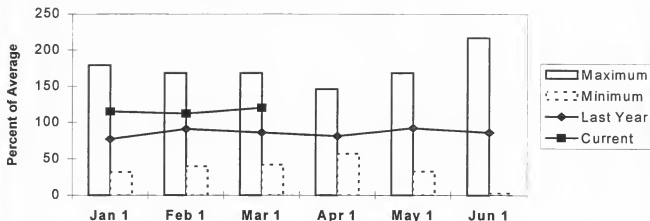
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(D) - The operational measurement of flow at this point has been discontinued.

Jefferson River Basin

Snowpack conditions in the Jefferson River Basin were above average. Snow water content was 120 percent of average and 142 percent of last year.

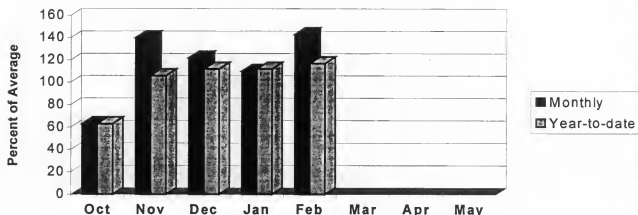
Jefferson Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1977; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during February was 145 percent of average and 227 percent of last year. Valley precipitation during February was 65 percent of average and 49 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 117 percent of average and 129 percent of last year.

Jefferson Precipitation



Lima storage was 144 percent of average and 109 percent of last year; Clark Canyon storage was 102 percent of average and 90 percent of last year; and Ruby River storage was 103 percent of average and 94 percent of last year.

Surface Water Supply Index (SWSI) was +1.2 in the Beaverhead River; +0.1 in the Ruby River; +1.1 in the Big Hole River; +0.6 in the Boulder River; and +1.0 in the Jefferson River as a whole.

JEFFERSON RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----->>		Future Conditions		----- Wetter ----->>		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
LIMA Reservoir Inflow (2)	APR-JUL	69	95	112	116	129	155	97
	APR-SEP	71	100	120	114	140	169	105
BEAVERHEAD RIVER near Grant (2)	APR-JUL	104	140	165	125	190	226	132
	APR-SEP	122	166	195	126	224	268	155
BEAVERHEAD RIVER at Barretts (2)	APR-JUL	130	178	210	122	242	290	172
	APR-SEP	149	206	245	121	284	341	203
RUBY RIVER Reservoir Inflow	APR-JUL	57	74	85	102	96	113	83
	APR-SEP	69	87	100	101	113	131	99
BIG HOLE RIVER near Malrose	APR-JUL	548	683	775	121	867	1002	641
	APR-SEP	583	730	830	119	930	1077	697
BOULDER RIVER near Boulder	APR-JUL	44	70	87	102	105	130	85
	APR-SEP	47	75	94	103	113	141	91
WILLOW CREEK Reservoir Inflow	APR-JUL	7.0	14.2	19.0	107	24	31	17.7
	APR-SEP	7.1	15.4	21	105	27	35	20
JEFFERSON RIVER near Three Forks (2)	APR-JUL	704	901	1035	105	1169	1366	985
	APR-SEP	766	974	1115	110	1256	1464	1012

JEFFERSON RIVER BASIN Reservoir Storage (1000 AF) - End of February					JEFFERSON RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
LIMA	84.0	49.8	45.6	34.5	BEAVERHEAD	16	137	125
CLARK CANYON	255.6	148.8	164.5	146.6	RUBY	11	128	107
RUBY RIVER	38.8	28.2	30.0	27.3	BIGHOLE	15	155	127
					BOULDER	9	144	115
					JEFFERSON RIVER BASIN	43	142	120

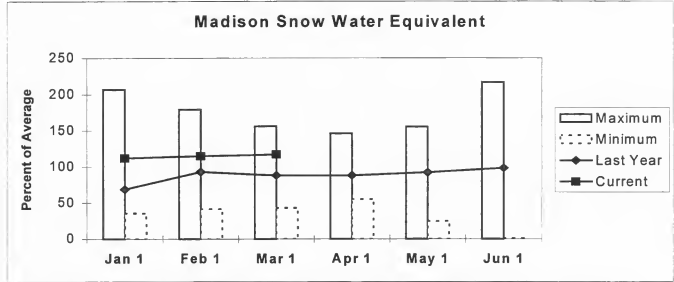
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural volume - actual volume may be affected by upstream water management.
 (D) - The operational measurement of flow at this point has been discontinued.

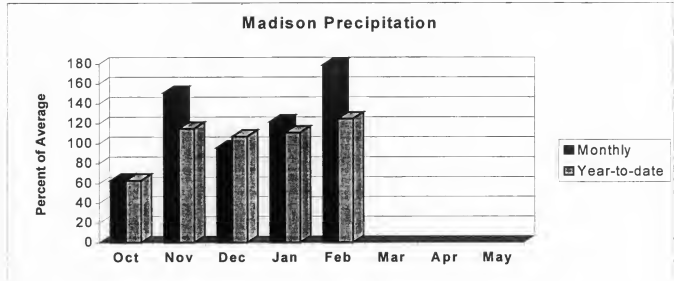
Madison River Basin

Snowpack conditions in the Madison River Basin were above average. Snow water content was 126 percent of average and 144 percent of last year. This is the sixth highest of record.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1997 and minimum was in 1977; April maximum swe was in 1997 and minimum was in 1977; May maximum swe was in 1997 and minimum swe was in 1977; and June maximum swe was in 1995 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain and valley precipitation during February was 179 percent of average and 264 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 125 percent of average and 138 percent of last year.



Ennis Lake storage was 89 percent of average and 104 percent of last year and Hebgen Lake storage was 117 percent of average and 107 percent of last year.

Surface Water Supply Index (SWSI) was +1.2 for the Madison River.

MADISON RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<< Drier		Future Conditions		Wetter >>>		30-Yr Avg. (1000AF)
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF) (% AVG.)		(1000AF)	(1000AF)	
HEBGEN LAKE Inflow	APR-JUL	367	410	440 116		470	513	380
	APR-SEP	480	531	565 116		599	650	486
ENNIS LAKE Inflow (2)	APR-JUL	652	725	775 117		825	898	662
	APR-SEP	811	900	960 116		1020	1109	831

MADISON RIVER BASIN Reservoir Storage (1000 AF) - End of February					MADISON RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ENNIS LAKE	41.0	30.3	29.2	34.1	MADISON abv HEBGEN LAKE	6	168	143
HEBGEN LAKE	377.5	289.2	271.1	247.8	MADISON b/w HEBGEN LAKE	12	132	117
					MADISON RIVER BASIN	18	146	127

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

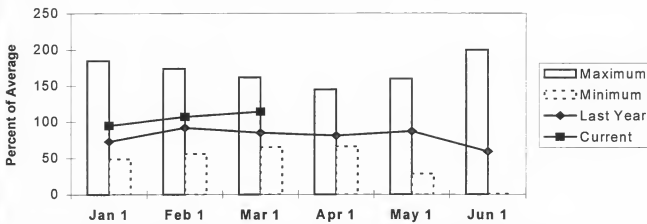
(2) - The value is natural volume - actual volume may be affected by upstream water management.

(D) - The operational measurement of flow at this point has been discontinued.

Gallatin River Basin

Snowpack conditions in the Gallatin River Basin were above average. Snow water content was 114 percent of average and 134 percent of last year.

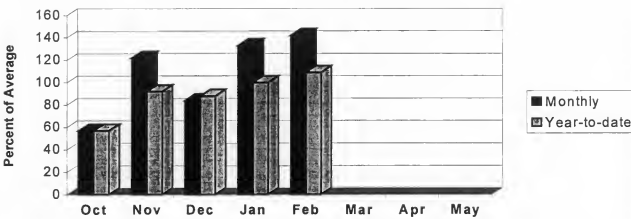
Gallatin Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1966; February maximum swe was in 1997 and minimum was in 1981; March maximum swe was in 1997 and minimum was in 1977 and 1987; April maximum swe was in 1997 and minimum was in 1987; May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1975 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during February was 145 percent of average and 231 percent of last year. Valley precipitation during February was 96 percent of average and 77 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 109 percent of average and 130 percent of last year.

Gallatin Precipitation



Middle Creek storage was 163 percent of average and 78 percent of last year.

Surface Water Supply Index (SWSI) was -0.3 for the Gallatin River.

GALLATIN RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----->>		Future Conditions		----- Wetter ----->>		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable)	(% AVG.)	(1000AF)	(1000AF)	
GALLATIN RIVER near Gateway	APR-JUL	404	458	495	112	532	586	441
	APR-SEP	477	538	580	112	622	683	518
HYALITE Reservoir Inflow	APR-JUL	16.4	19.4	22	94	24	27	23
	APR-SEP	19.1	22	25	94	27	30	26
HYALITE CREEK nr Boreman (2)	APR-JUL	25	31	35	96	38	44	36
	APR-SEP	30	36	40	95	44	50	42
GALLATIN RIVER at Logan (2)	APR-JUL	299	404	475	95	546	651	498
	APR-SEP	367	482	560	96	638	753	581

GALLATIN RIVER BASIN Reservoir Storage (1000 AF) - End of February					GALLATIN RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MIDDLE CREEK	10.2	6.2	7.9	3.8	UPPER GALLATIN	7	140	121
					HYALITE	4	113	94
					BRIDGER	3	143	119
					GALLATIN RIVER BASIN	14	134	114

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

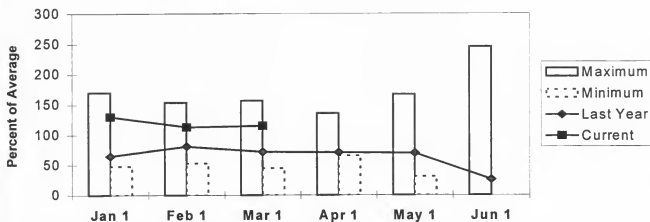
(2) - The value is natural volume - actual volume may be affected by upstream water management.

(2) - The operational measurement of flow at this point has been discontinued.

Missouri Mainstem River Basin

Snowpack conditions in the Headwaters Missouri Mainstem River Basin were above average. Snow water content was 115 percent of average and 156 percent of last year.

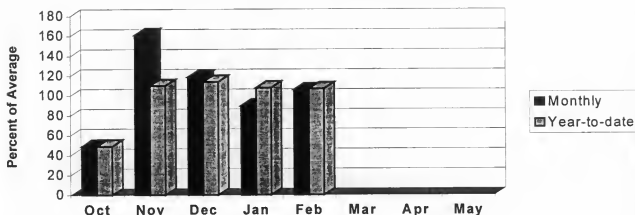
Headwaters Mainstem Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1961; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during February was 114 percent of average and 228 percent of last year. Valley precipitation during February was 78 percent of average and 68 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 107 percent of average and 131 percent of last year.

Headwaters Mainstem Precipitation



Canyon Ferry Lake storage was 103 percent of average and 95 percent of last year; Helena Valley storage was 102 percent of average and 102 percent of last year; Lake Helena storage was 109 percent of average and 102 percent of last year; Hauser & Helena storage was 104 percent of average and 101 percent of last year; Holter Lake storage was 119 percent of average and 101 percent of last year; and Fort Peck Lake storage was 103 percent of average and 101 percent of last year.

Surface Water Supply Index (SWSI) was +0.8 in the Missouri River above Canyon Ferry; +0.7 in the Missouri River below Canyon Ferry; +1.5 in the Missouri River above Fort Peck; and +1.0 in the Missouri River below Fort Peck.

MISSOURI MAINSTEM RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----->>		Future Conditions		----- Wetter ----->>		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
MISSOURI RIVER at Toston (2)	APR-JUL	1729	2102	2355	114	2608	2981	2075
	APR-SEP	1957	2435	2730	113	3025	3503	2416
FRICKLY PEAR CREEK near Clancy	APR-JUL	12.6	17.9	22	94	25	30	23
	APR-SEP	15.0	21	26	94	30	36	27
GIBSON Reservoir Inflow	APR-JUL	482	558	610	128	662	738	478
	APR-SEP	534	615	670	127	725	806	526
MISSOURI RIVER at Fort Benton (2)	APR-JUL	2659	3303	3740	121	4177	4821	3087
	APR-SEP	3053	3881	4420	120	4959	5811	3678
MARIAS RIVER near Shelby (2)	APR-JUL	467	558	620	139	682	773	447
	APR-SEP	497	588	650	134	712	803	487
MISSOURI RIVER at Virgelle (2)	APR-JUL	2979	3864	4465	124	5066	5951	3595
	APR-SEP	3584	4609	5210	124	5811	7042	4217
MISSOURI RIVER near Landusky (2)	APR-JUL	3532	4412	5010	129	5608	6488	3897
	APR-SEP	3985	5212	5820	127	6428	7923	4580
MISSOURI RIVER below Fort Peck (2)	APR-JUL	3537	4432	5040	126	5648	6543	4015
	APR-SEP	3752	5215	5784	130	6353	7728	4467
LAKE SAKAKAWEA Inflow (2)	APR-JUL	9735	11480	12665	128	13850	15595	9897
	APR-SEP	10892	13321	14500	128	15679	18381	11346

MISSOURI MAINSTEM RIVER BASIN
Reservoir Storage (1000 AF) - End of February

MISSOURI MAINSTEM RIVER BASIN
Watershed Snowpack Analysis - March 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CANYON FERRY LAKE	2043.0	1588.0	1668.0	1540.0	HEADWATERS MAINSTEM	10	156	115
HELENA VALLEY	9.2	4.3	4.2	4.2	SMITH-JUDITH-MUSSELSHELL	12	167	111
LAKE HELENA	10.4	11.1	10.9	10.2	SUN-TETON-MARIAS	14	229	127
HAUSER & HELENA	61.9	63.6	63.1	61.0	MAINSTEM ab FT PECK RES	35	191	119
HOLTER LAKE	81.9	81.0	79.9	68.2	MILK RIVER BASIN	10	307	135
FORT PECK LAKE (MAF)	18.9	15.2	15.1	14.7	MISSOURI MAINSTEM BASIN	44	196	119

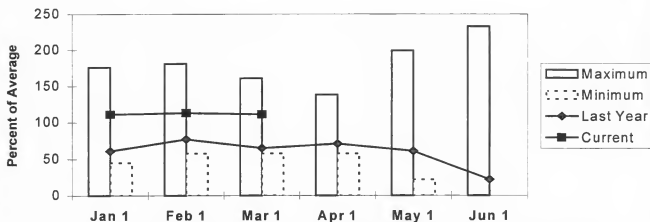
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(D) - The operational measurement of flow at this point has been discontinued.

Smith-Judith-Musselshell River Basins

Snowpack conditions in the Smith-Judith-Musselshell River Basins were above average. Snow water content was 111 percent of average and 167 percent of last year. Snow water content in the Smith River Basin was 123 percent of average and 170 percent of last year; in the Judith River Basin was 102 percent of average and 164 percent of last year; and in the Musselshell Basin River was 112 percent of average and 174 percent of last year.

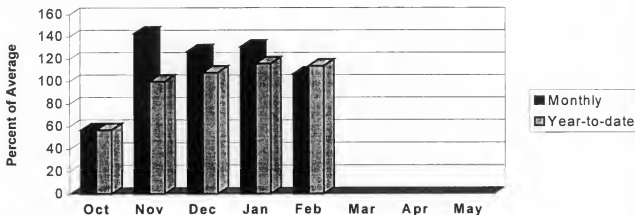
Smith-Judith-Musselshell Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe in 1988; February maximum swe was in 1978 and minimum swe was in 1987; March maximum swe was in 1978 and minimum swe was in 1987; April maximum swe was in 1970 and minimum swe was in 1992; and May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during February in the Smith-Belts was 110 percent of average and 285 percent of last year; in the Judith was 109 percent of average and 274 percent of last year; and in the Musselshell was 114 percent of average and 363 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 114 percent of average and 157 percent of last year.

Smith-Judith-Musselshell Precipitation



Smith River storage was 118 percent of average and 89 percent of last year; Bair storage was 76 percent of average and 78 percent of last year; Martinsdale storage was 110 percent of average and 65 percent of last year; and Deadman's Basin was 123 percent of average and 90 percent of last year.

Surface Water Supply Index (SWSI) was +1.5 in the Smith River and +1.2 in the Musselshell River.

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<< Drier		Future Conditions		Wetter >>		30-Yr Avg. (1000AF)
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF) (% AVG.)		(1000AF)	(1000AF)	
SMITH RIVER near Fort Logan (D)	APR-JUL	39	59	73	118	87	107	62
	APR-SEP	48	71	86	118	101	124	73
SHEEP CREEK nr White Sulphur Springs	APR-JUL	16.1	19.0	21	116	23	26	18.1
	APR-SEP	18.4	22	24	114	26	30	21
SMITH RIVER blw Eagle Creek	APR-JUL	168	199	220	126	241	272	175
	APR-SEP	194	233	260	124	287	326	210
NF MUSSELSHELL near Delpine	APR-JUL	3.31	4.79	5.80	121	6.81	8.29	4.80
	APR-SEP	3.92	5.61	6.75	121	7.89	9.58	5.60
SF MUSSELSHELL abv Martinsdale	APR-JUL	28	48	62	118	75	95	52
	APR-SEP	30	52	66	118	81	102	56

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Reservoir Storage (1000 AF) - End of February

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Watershed Snowpack Analysis - March 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SMITH RIVER	10.6	7.9	8.9	6.7	SMITH	6	170	123
NEWLAN CREEK	12.4	8.9	---	8.2	JUDITH	6	164	102
BAIR	7.0	3.2	4.1	4.2	MUSSELSHELL	5	174	112
MARTINDALE	23.1	10.3	15.8	9.4	SMITH-JUDITH-MUSSELSHELL	12	167	111
DEADMAN'S BASIN	72.2	56.5	62.8	46.1				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

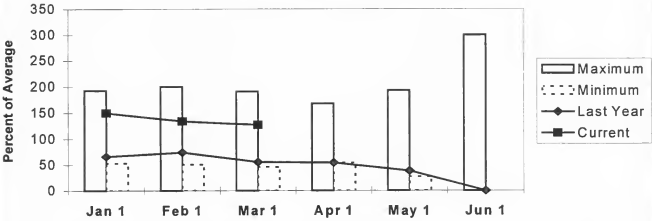
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
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 (D) - The operational measurement of flow at this point has been discontinued.

Sun-Teton-Marias River Basins

Snowpack conditions in the Sun-Teton-Marias River Basins were above average and fifth highest of record behind 1972, 1971, 1974, and 1997 respectively. Snow water content was 127 percent of average and 229 percent of last year. Snow water content in the Sun River Basin was 121 percent of average and 223 percent of last year; in the Teton River Basin was 131 percent of average and 243 percent of last year; and in the Marias River Basin was 130 percent of average and 233 percent of last year.

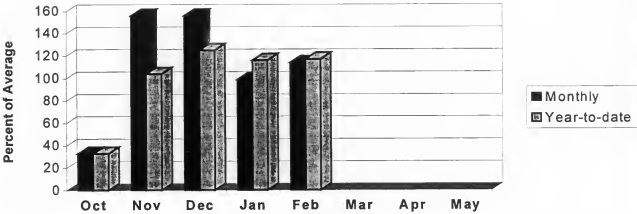
Sun-Teton-Marias Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1984; April maximum swe was in 1972 and minimum swe was in 1984; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during February in the Sun was 107 percent of average and 441 percent of last year; in the Teton was 122 percent of average and 609 percent of last year; and in the Marias was 113 percent of average and 690 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 117 percent of average and 175 percent of last year.

Sun-Teton-Marias Precipitation



Gibson storage was 80 percent of average and 88 percent of last year; Pishkun storage was 111 percent of average and 101 percent of last year; Willow Creek storage was 100 percent of average and 71 percent of last year; Lower Two Medicine Lake storage was 0 percent of average and 0 percent of last year; Four Horns Lake storage was 74 percent of average and 85 percent of last year; Swift storage was 99 percent of average and 94 percent of last year; Lake Frances storage was 68 percent of average and 64 percent of last year; and Lake Elwell (Tiber) storage was 120 percent of average and 92 percent of last year.

Surface Water Supply Index (SWSI) was +1.6 in the Sun River; +2.4 in the Teton River; +2.3 in the Birch/Dupuyer Creeks; and +2.4 in the Marias River.

SUN-TETON-MARIAS RIVER BASINS
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
GIBSON Reservoir Inflow	APR-JUL	482	558	610	128	662	738	478
	APR-SEP	534	615	670	127	725	806	526
TWO MEDICINE RIVER nr Browning (2)	APR-JUL	213	256	285	133	314	357	215
	APR-SEP	227	271	300	132	329	373	228
BADGER CREEK near Browning (2)	APR-JUL	94	115	130	125	145	166	104
	APR-SEP	112	134	150	125	166	188	120
SWIFT Reservoir Inflow	APR-JUL	56	72	84	123	95	111	68
	APR-SEP	69	86	98	123	110	127	80
DUPUYER CREEK near Valier	APR-JUL	3.6	13.1	19.5	126	26	35	15.5
	APR-SEP	5.0	15.1	22	126	29	39	17.4
CUT BANK CREEK at Cut Bank	APR-JUL	82	99	110	126	121	138	87
	APR-SEP	89	107	120	125	133	152	96
MARIAS RIVER near Shelby (2)	APR-JUL	467	558	620	139	682	773	447
	APR-SEP	497	588	650	134	712	803	487

SUN-TETON-MARIAS RIVER BASINS Reservoir Storage (1000 AF) - End of February					SUN-TETON-MARIAS RIVER BASINS Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
	This Year	Last Year	Avg				Last Yr	Average
GIBSON	99.1	38.2	43.3	47.5	SUN	7	223	121
PISHKUN	32.0	19.6	19.4	17.6	TETON	4	243	131
WILLOW CREEK	32.2	21.8	30.5	21.7	MARIAS	6	233	130
LOWER TWO MEDICINE LAKE	11.9	0.0	11.9	6.9	SUN-TETON-MARIAS	15	220	127
FOUR HORNS LAKE	19.2	9.3	10.9	12.5				
SWIFT	30.0	16.3	17.4	16.4				
LAKE FRANCES	112.0	47.3	73.5	69.7				
LAKE ELWELL (TIBER)	1347.0	694.9	759.4	580.2				

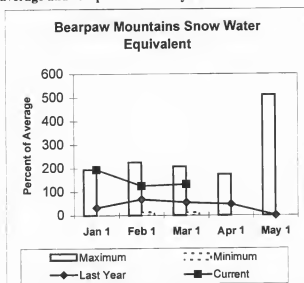
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The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
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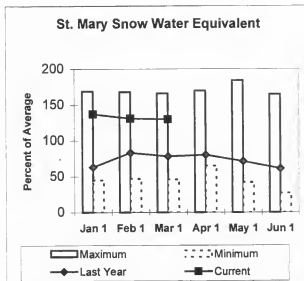
St. Mary and Milk River Basins

Snowpack conditions in the St. Mary and Milk River Basins were well above average. Snow water content in the Saint Mary River Basin was 130 percent of average and 168 percent of last year. This is the seventh highest year of record. The Bearpaw Mountains were 132 percent of average and 209 percent of last year and the fourth highest of record, 1973-1998, behind 1978, 1994, and 1979 respectively. The Cypress Hills in Canada were 136 percent of average and 490 percent of last year.

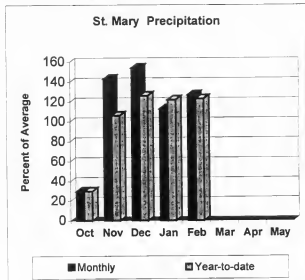
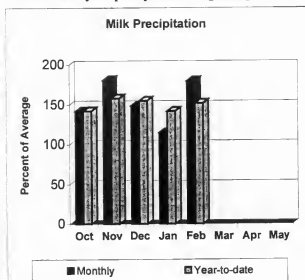


Bearpaw - January maximum swe was established in 1978 and minimum swe was in 1981; February maximum swe was 1978 and minimum was in 1973; March maximum swe was 1978 and minimum swe was 1981; April maximum swe was in 1975 and minimum swe was in 1983; May maximum swe was 1975 and the minimum has occurred in several years. Average is for the period 1961 through 1990.

St. Mary - January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1992; May maximum swe was in 1992 and minimum swe was in 1977; and June maximum swe was in 1991 and minimum swe was 1992. Average is for the period 1961 through 1990.



Mountain and valley precipitation in the St. Mary River Basin during February was 127 percent of average and 346 percent of last year with the water year precipitation, beginning October 1, 1998, at 123 percent of average and 159 percent of last year. The Milk River Basin during February was 180 percent of average and 365 percent of last year with the water year precipitation, beginning October 1, 1998, at 152 percent of average and 210 percent of last year.



Lake Sherburne storage was 54 percent of average and 49 percent of last year; Fresno storage was 85 percent of average and 89 percent of last year; Beaver Creek storage was 135 percent of average and 108 percent of last year; and Nelson storage was 101 percent of average and 75 percent of last year.

Surface Water Supply Index (SWSI) was +0.7 for the Milk River.

ST. MARY and MILK RIVER BASINS
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----->>		Future Conditions		----- Wetter ----->>		30-Yr Avg. (1000AF)
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF) (% AVG.)		(1000AF)	(1000AF)	
LAKE SHERBURNE Inflow	APR-JUL	118	126	132	123	138	146	107
	APR-SEP	137	146	153	122	160	169	125
ST. MARY RIVER near Babb	APR-JUL	429	462	485	123	508	541	395
	APR-SEP	501	539	565	122	591	629	463
ST. MARY RIVER at US/CAN Border (2)	APR-JUL	529	577	610	132	643	691	462
	APR-SEP	614	668	705	131	742	796	539
MILK RIVER at Western Crossing	MAR-JUL	35	49	59	134	69	83	44
	MAR-SEP	36	51	62	135	73	88	46
MILK RIVER at Eastern Crossing (2)	MAR-JUL	62	85	100	125	116	138	80
	MAR-SEP	73	95	110	125	125	147	88
BEAVER CREEK Reservoir Inflow	MAR-JUL	4.9	9.7	13.0	126	16.3	21	10.3

ST. MARY and MILK RIVER BASINS Reservoir Storage (1000 AF) - End of February					ST. MARY and MILK RIVER BASINS Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
LAKE SHERBURNE	64.3	14.3	29.3	26.3	ST. MARY	3	168	130
FRESNO	127.0	44.0	49.4	52.0	BEARPAW MOUNTAINS	4	209	132
BEAVER CREEK	3.5	2.7	2.5	2.0	CYPRESS HILLS, CANADA	6	490	136
NELSON	66.8	35.7	47.7	35.3	MILK RIVER BASIN	9	294	137
					ST. MARY & MILK BASINS	13	198	132

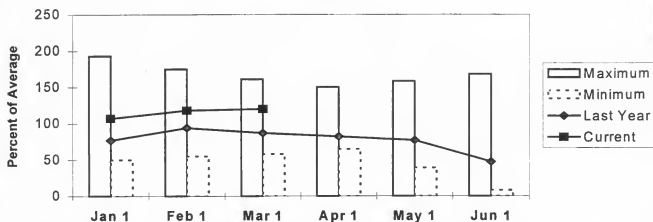
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The average is computed for the 1961-1990 base period.

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Upper Yellowstone River Basin

Snowpack conditions in the Upper Yellowstone River Basin were above average. Snow water content was 120 percent of average and 137 percent of last year. This is the ninth highest year of record.

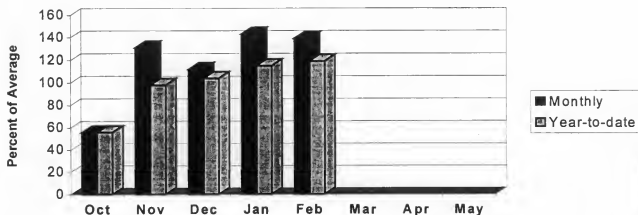
Upper Yellowstone Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1997 and minimum swe was in 1977; April maximum swe was in 1971 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1987; and June maximum swe was 1982 and minimum swe was in 1987 and 1994. Average is for the period 1961 through 1990.

Mountain precipitation during February was 145 percent of average and 309 percent of last year. Valley precipitation during February was 34 percent of average and 90 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 119 percent of average and 135 percent of last year.

Upper Yellowstone Precipitation



Mystic Lake storage was 81 percent of average and 142 percent of last year and Cooney storage was 101 percent of average and 82 percent of last year.

Surface Water Supply Index (SWSI) was +2.5 in the Yellowstone River above Livingston; +0.3 in the Shields River; +0.6 in the Boulder River; +0.9 in the Stillwater River; -0.2 in the Rock/Red lodge Creeks; +0.8 in the Clarks Fork River; and +1.8 in the Yellowstone River above Bighorn River.

UPPER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<< Drier		Future Conditions		Wetter >>>		30-Yr Avg. (1000AF)
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
YELLOWSTONE at Lake Outlet	APR-JUL	612	694	750	131			
	APR-SEP	803	914	990	125	806	888	573
YELLOWSTONE RIVER at Corwin Spgs.	APR-JUL	1841	1966	2050	127			
	APR-SEP	2201	2349	2450	127	2134	2259	1609
YELLOWSTONE RIVER near Livingston	APR-JUL	2165	2305	2400	129			
	APR-SEP	2574	2738	2850	127	2495	2635	1855
SHIELDS RIVER nr Livingston	APR-JUL	90	132	160	99			
	APR-SEP	99	147	180	101	188	230	162
BOULDER RIVER at Big Timber	APR-JUL	272	318	350	105			
	APR-SEP	296	346	380	104	213	261	179
MYSTIC LAKE Reservoir Inflow (2)	APR-JUL	60	66	70	115			
	APR-SEP	78	85	90	114	74	81	61
STILLWATER RIVER nr Absarokee (2)	APR-JUL	446	511	555	111			
	APR-SEP	541	612	660	111	599	664	498
CLARKS FORK RIVER nr Belfry	APR-JUL	500	554	590	111			
	APR-SEP	552	607	645	109	626	680	532
COONEY Reservoir Inflow (2)	APR-JUL	12.3	29	41	87			
	APR-SEP	25	42	53	93	53	70	47
YELLOWSTONE RIVER at Billings (2)	APR-JUL	3690	4113	4400	123			
	APR-SEP	4674	4994	5300	126	4687	5110	3577
						5606	5895	4211

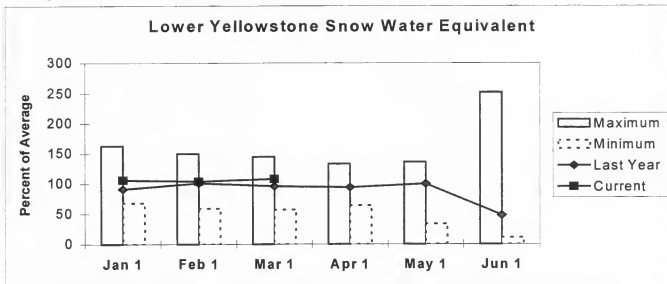
UPPER YELLOWSTONE RIVER BASIN Reservoir Storage (1000 AF) - End of February					UPPER YELLOWSTONE RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MYSTIC LAKE	21.0	4.7	3.3	5.8	YELLOWSTONE ab LIVINGSTON	17	145	128
COONEY	27.4	15.6	19.1	15.4	SHIELDS	5	139	115
					BOULDER-STILLWATER	4	150	124
					CLARK'S FORK-ROCK CREEK	12	125	110
					UPPER YELLOWSTONE BASIN	34	137	120

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.
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Lower Yellowstone River Basin

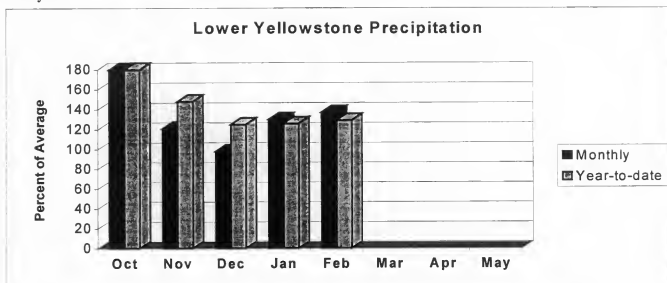
Snowpack conditions in the Lower Yellowstone River Basin, in Wyoming, were near average. Snow water content was 108 percent of average and 112 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1981; February maximum swe was in 1997 and minimum swe was in 1981; March maximum swe was in 1986 and minimum swe was in 1977; April maximum swe was in 1986 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1981; and June maximum swe was in 1995 and minimum swe was in 1994. Average is for the period 1961 through 1990.

Mountain and valley precipitation during February was 137 percent of average and 176 percent of last year.

Mountain and valley water year precipitation, beginning October 1, 1998, was 129 percent of average and 130 percent of last year.



Bighorn Lake storage was 99 percent of average and 92 percent of last year and Tongue River storage was 26 percent of average and 111 percent of last year.

Surface Water Supply Index (SWSI) was +1.9 in the Bighorn River below Bighorn Lake; -0.7 in the Little Bighorn River; +1.8 in the Yellowstone River below Bighorn River; -1.1 in the Tongue River; and -0.1 in the Powder River.

LOWER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - March 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		90%	70%	Chance Of Exceeding *		30%	10%	
		(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)	(1000AF)	
YELLOWSTONE RIVER at Billings (2)	APR-JUL	3690	4113	4400	123	4687	5110	3577
	APR-SEP	4674	4994	5300	126	5606	5895	4211
BIGHORN RIVER nr St. Xavier (2)	APR-JUL	1354	1673	1890	115	2107	2426	1645
	APR-SEP	1543	1870	2110	118	2350	2619	1794
LITTLE BIGHORN RIVER nr Hardin	APR-JUL	55	85	105	75	125	155	140
	APR-SEP	66	98	120	76	142	174	157
TONGUE RIVER Reservoir Inflow (2)	APR-JUL	95	149	185	80	221	275	230
	APR-SEP	116	172	210	82	248	304	256
YELLOWSTONE RIVER at Miles City (2)	APR-JUL	4949	5873	6500	120	7127	8051	5431
	APR-SEP	6407	7031	7740	123	8449	9045	6281
POWDER RIVER at Moorehead	APR-JUL	113	174	215	102	256	317	211
	APR-SEP	131	193	235	101	277	339	232
POWDER RIVER near Locate	APR-JUL	148	200	235	93	270	322	252
	APR-SEP	144	210	255	92	300	366	276
YELLOWSTONE RIVER nr Sidney (2)	APR-JUL	5701	6772	7500	127	8228	9299	5925
	APR-SEP	7018	7545	8440	124	9335	10425	6814

LOWER YELLOWSTONE RIVER BASIN Reservoir Storage (1000 AF) - End of February					LOWER YELLOWSTONE RIVER BASIN Watershed Snowpack Analysis - March 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BIGHORN LAKE	1356.0	800.2	867.6	810.4	WIND RIVER (Wyoming)	19	117	115
TONGUE RIVER	68.0	7.8	7.0	30.1	SHOSHONE RIVER (Wyoming)	7	148	132
					BIGHORN RIVER (Wyoming)	21	128	118
					LITTLE BIGHORN (Wyoming)	3	93	90
					TONGUE RIVER (Wyoming)	9	86	85
					POWDER RIVER (Wyoming)	9	95	90
					LOWER YELLOWSTONE BASIN	47	113	108

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Montana
Basin Outlook Report
Natural Resources Conservation Service
Bozeman, MT

